CLAIMS

What is claimed is:

1. A method of suppressing fires in a space comprising the steps of:

(a) generating a first fire suppressing gas mixture from at least one non-azide solid propellant chemical, the first fire suppressing gas mixture comprising nitrogen and at least one of moisture and carbon dioxide,

(b) filtering at least a percentage of said at least one of moisture and carbon dioxide from the first fire suppressing gas mixture to produce a second fire suppressing gas mixture; and

(c) delivering the second fire suppressing gas mixture into the space.

2. The method as claimed in claim 1 wherein the first gas is nitrogen.

3. The method as claimed in claim 2 wherein the second gas comprises water vapor.

4. The method as claimed in claim 3 wherein the third gas is CO2

5. The method as claimed in claim 1 wherein substantially all of the second gas is filtered from the first fire suppressing gas mixture in step (b).

6. The method as claimed in claim 6 wherein the predetermined time ranges from about one to five minutes.

7. The method as claimed in claim 1 further comprising the step of reducing the temperature of the second fire suppressing gas mixture.

8. The method as claimed in claim 1 wherein the solid propellant chemical is azide free.

9. An apparatus for suppressing fires in a normally occupied enclosed space comprising:

(a) a sensor for detecting a fire;

(b) at least one solid inert gas generator for generating and delivering a fire suppressing gas mixture to the enclosed space upon receiving a signal from the sensor; and

(c) an inert gas discharge diffuser to direct the fire suppressing gas mixture into said enclosed space.

10. The apparatus as claimed in claim 9 wherein the fire suppressing gas mixture includes nitrogen.

11. The apparatus as claimed in claim 10 wherein the fire suppressing gas mixture includes at least one of water vapor and carbon dioxide.

12. The apparatus as claimed in claim 9 wherein the fire suppressing gas mixture comprises at least two gases and the apparatus further comprises at least one filter for filtering at least a portion of at least one of the gases from the fire suppression gas mixture, prior to the delivery thereof to the enclosed space.

13. The apparatus as claimed in claim 12 wherein the filter is adapted to filter substantially all of the at least one of the gases from the first suppressing gas mixture.

14. A gas generator for generating and delivering a fire suppressing gas mixture to an enclosed space, comprising:

a housing;

at least one pre-packed solid propellant disposed within said housing;

a pyrotechnic device for igniting said solid propellant and thereby generating sa d fire suppressing gas mixture; and

a discharge diffuser for directing the fire suppressing gas mixture within said enclosed space.

15. The gas generator as claimed in claim 14, further comprising at least one filter for filtering at least a portion of one gas from said fire suppressing gas mixture.

16. The gas generator as claimed in claim 14, further comprising at least one screen for reducing the temperature of said fire suppressing gas mixture.

17. The gas generator as claimed in claim 14, wherein said discharge diffuser includes a 180° directional cap.

18. The gas generator as claimed in claim 14, wherein said discharge diffuser includes a 360° directional cap.

19. The gas generator as claimed in claim 14, wherein said discharge diffuser includes a perforated cap.

20. The gas generator as claimed in claim 14, wherein said discharge diffuser includes a 90° directional cap.